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10/626,140

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EXAMINER

LIEW, ALEX KOK SOON

ART UNIT

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**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

<b>Office Action Summary</b>	<b>Application No.</b> 10/626,140	<b>Applicant(s)</b> FUKAGAWA ET AL.	
	<b>Examiner</b> ALEX LIEW	<b>Art Unit</b> 2624	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☒ Responsive to communication(s) filed on 03 April 2009.
- 2a) ☒ This action is **FINAL**.                      2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 1-20 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-20 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All    b) ☐ Some \*    c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- |  |   |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)          | 4) <input type="checkbox"/> Interview Summary (PTO-413)           |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____                                      |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)          | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date _____  | 6) <input type="checkbox"/> Other: _____                          |

1. The amendment filed on 4/3/09 is entered and made of record.

2. **Response to applicant's arguments**

On pages 13 and 14, the applicant stated:

"Kishimoto does not disclose a grouping frame for enclosing only the pattern holes corresponding to the chosen grouping condition. The broken lines (Figure 3) disclosed in Kishimoto enclose all of the chips to be inspected, regardless of the grouping condition. Also, Kishimoto does not disclose any grouping condition choosing means, since no grouping condition under which a plurality of pattern holes are grouped into at least one data group is chosen in Kishimoto. Kishimoto merely discloses that the circuit board to be inspected is divided into areas to be viewed on the basis of these transmitted data (Kishimoto; column 4, line 67 to column 5, line 1). There is no disclosure in Kishimoto that any grouping condition is chosen for dividing the circuit board into the areas."

The examiner agrees; in an updated search the examiner found Kawahara (US pat no 5,608,816) reading on the amended claims. Kawahara discloses on inspection data is generated by classifying and grouping solder element shape and position data corresponding to a plurality of patterns into at least one data group which is grouped according to a grouping condition apart from other data group, wherein the grouped data is identified by grouping condition, wherein said apparatus further comprises grouping condition choosing means for choosing the grouping condition and a grouping frame for enclosing only the pattern holes corresponding to the chosen grouping condition (see figure 9B, first grouping condition is grouping circular holes without any overlap between enclosing

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frames, second grouping condition is grouping with overlapping enclosing frame, the attribute grouping condition is grouped by the number of hole in each enclosed frame).

***Claim Rejections - 35 USC § 103***

1. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

2. Claims 1-8 are rejected under 35 U.S.C. 103(a) as being unpatentable over Tsujikawa (US pat no 5,991,435) in view of Kawahara (US pat no 5,608,816) and official notice (MPEP 2144.03).

With regards to claim 1, Tsujikawa discloses a printing inspection apparatus for inspecting a printing state of cream solder on a substrate after screen printing, said apparatus comprising image pick-up means for picking up an image of said substrate (see figure 14, 53) and printing judging means for making a go/no-go judgment of the printing state based on an image pick-up result of said substrate from said image pick-up means and inspection data needed to perform a printing inspection (see col. 6 lines 29 to 36, if the cream solder covers over a certain amount of area then it is classified as failure otherwise it non-defective), but does not disclose grouping means for classifying and grouping the element position

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data into data groups which are grouped according to a grouping condition to identify at least one data group according to the grouping condition apart from other data group than the data group grouped.

Also one skilled in the art would include a step of grouping plurality of grouped holes because to ensure proper alignment and placement of each electronic component onto the electronic board.

Kawahara reads on inspection data is generated by classifying and grouping solder element shape and position data corresponding to a plurality of patterns into at least one data group which is grouped according to a grouping condition apart from other data group, wherein the grouped data is identified by grouping condition, wherein said apparatus further comprises grouping condition choosing means for choosing the grouping condition and a grouping frame for enclosing only the pattern holes corresponding to the chosen grouping condition (see figure 9B, first grouping condition is grouping circular holes without any overlap between enclosing frames, second grouping condition is grouping with overlapping enclosing frame, the attribute grouping condition is grouped by the number of hole in each enclosed frame). One skilled in the art would include grouping each individual set of electrodes or chip together because to examine each chip for any defects or misalignment to provide accurate inspection of the electronic device.

Tsujikawa does not disclose displaying means display the judgment result in connection with the data groups. It is well known in the art to display results on the monitor screen whether the electronic board is a defective or not defective. It

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would have been obvious to one having ordinary skill in the art at the time of the invention was made to include displaying results means because to make it known to the operator who is inspecting the electronic component so the operator can redo the inspection operation until the electronic board is error free improving the quality of manufacturing production.

With regards to claim 2, Tsujikawa discloses a printing inspection apparatus according to claim 1 wherein the grouping condition is determined based on a geometrical range on a printing surface of said substrate (see figure 8 and 9, the electronic board is rectangular and the geometrical range of the cream solders P1 – 3 are within the rectangular electrical board) and said printing judging means makes a judgment of the printing state using a data group grouped as an inspection performance range (see column 6 lines 29 to 36, judging means is whether the electronic board is defective or not defective).

With regards to claim 3, Tsujikawa discloses a printing inspection apparatus according to claim 1, wherein the grouping condition is determined based on an attribute of said electronic components (see figure 8 and 9, the electronic board is rectangular which has solder creams on three corners which is grouped within the rectangular board – attribute is the shape of the electronic board) and said printing judging means makes a judgment of the printing state using a data group grouped as an electronic component having an attribute specified as a subject to

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be inspected (see col. 6 lines 29 – 36 – judging means is whether the electronic board is defective or not defective).

With regards to claim 4, Tsujikawa discloses a printing inspection apparatus according to claim 1, wherein the grouping condition is determined so as to make a one-to-one correspondence between said electronic components and the data groups (see figure 9, data groups are P1 – 3 corresponds with electronic board 9) and said display means displays the judgment result for each data group (see column 6 lines 29 to 36, judging means is whether the electronic board is defective or not defective).

With regards to claim 5, see the rationale and rejection for claim 1.

With regards to claim 6, see the rationale and rejection for claim 2.

With regards to claim 7, see the rationale and rejection for claim 3.

With regards to claim 8, see the rationale and rejection for claim 4.

3. Claims 9 – 20 are rejected under 35 U.S.C. 103(a) as being unpatentable over Tsujikawa (US pat no 5,991,435) in view of Kawahara ('816).

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With regards to claim 9, Tsujikawa discloses a printing inspection data generating apparatus for generating inspection data used in a printing inspection apparatus for inspecting a printing state of cream solder on a substrate after screen printing and containing shape and position data indicating shapes and positions of solder print portions formed by printing the cream solder on a printing surface (see figure 1A), said printing inspection data generating apparatus comprising:

data providing means for providing element shape and position data indicating shapes and positions of element solder print portions formed on respective electrodes provided on a circuit forming surface of said substrate to be used to bond electronic components (see figure 10, points 82 – 85 are solder cream points which are assigned position coordinates and the shapes indicated are shown in figure 17 a – c – triangle and rectangle).

Tsujikawa does not disclose grouping means for classifying and grouping the element position data into data groups which are grouped according to a grouping condition to identify at least one data group according to the grouping condition apart from other data group than the data group grouped.

Kawahara reads on inspection data is generated by classifying and grouping solder element shape and position data corresponding to a plurality of patterns into at least one data group which is grouped according to a grouping condition apart from other data group (see figure 9B, first grouping condition is grouping circular holes without any overlap between enclosing frames, second grouping condition is grouping with overlapping enclosing frame), wherein the grouped



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data is identified by grouping condition, wherein said apparatus further comprises grouping condition choosing means for choosing the grouping condition and a grouping frame for enclosing only the pattern holes corresponding to the chosen grouping condition (the attribute grouping condition is grouped by the number of hole in each enclosed frame). One skilled in the art would include grouping each individual set of electrodes or chip together because to examine each chip for any defects or misalignment to provide accurate inspection of the electronic device.

With regards to claim 10, Tsujikawa discloses a printing inspection data generating apparatus according to claim 9, wherein the grouping condition is determined based on a geometrical range on the printing surface of said substrate (see figure 8 and 9, the electronic board is rectangular and the geometrical range of the cream solders P1 – 3 are within the rectangular electrical board).

With regards to claim 11, Tsujikawa discloses a printing inspection data generating apparatus according to claim 9, wherein the grouping condition is determined based on an attribute of said electronic component (see figure 8 and 9, the electronic board is rectangular which has solder creams on three corners which is grouped within the rectangular board – attribute is the shape of the electronic board).

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With regards to claim 12, Tsujikawa discloses a printing inspection data generating apparatus according to claim 9, wherein the grouping condition is determined so as to make one group for each of said electronic components (see figure 9, data groups are P1 – 3 corresponds with electronic board 9).

With regards to claim 13, Tsujikawa discloses a printing inspection data generating apparatus according to claim 9, further comprising specific inspection data giving means for giving specific inspection data to the individual data group (see column 10 lines 5 to 24, the specific inspection data is the amount of shift from current cream solder to next cream solder in x and / or y axis).

With regards to claim 14 / 9, Tsujikawa discloses Tsujikawa discloses a printing inspection data generating apparatus according to claim 9, wherein said data providing means provides element shape and position data obtained based on mask opening data detected from a mask plate to be used for the screen printing (see figure 8 P1 – 3 are mask opening and cream solder are apply to each Q1 – 3, respectively, the mask plate is 9 in fig 8).

With regards to claims 14 / 10 – 13, see the rationale and rejection for claim 14 / 9.

With regards to claim 15, see the rationale and rejection for claim 9.

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With regards to claim 16, see the rationale and rejection for claim 10.

With regards to claim 17, see the rationale and rejection for claim 11.

With regards to claim 18, see the rationale and rejection for claim 12.

With regards to claim 19, see the rationale and rejection for claim 13.

With regards to claim 20 / 15 – 19, see the rationale and rejection for claim 14 / 9.

### **Conclusion**

Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not mailed until after the end of the **THREE-MONTH** shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will

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the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to ALEX LIEW whose telephone number is (571)272-8623 or cell (917)763-1192. The examiner can be reached anytime.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Matthew Bella can be reached on (571) 272-7778. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Matthew C Bella/  
Supervisory Patent Examiner, Art  
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